



# RF



**ORANGE COUNTY AMATEUR RADIO CLUB, INC.**

**VOL. LIX NO. 09**

**P.O. BOX 3454, TUSTIN, CA 92781-3454**

**September 2018**

## The Prez Sez.....

by Tim N6GP



We started our club's 85<sup>th</sup> anniversary celebration with a super-sized Field Day in June, and the celebration continues this month. Our Anniversary celebration meeting on Sept 21 is extra special. It will kick off at 6:30 in the parking lot with a show of some very interesting mobile vehicles, including Wayne Overbeck's 10 band UHF rover, and the brand new American Red Cross van. Our ARRL Section Manager, Carl Gardenias WU6D will be on hand to start the meeting with a few remarks.

Our club Historian and Board member Corey KE6YHX has been hard at work researching the early years of OCARC in the Santa Ana Library Archives, and will be sharing some of the interesting findings he has made. I will be doing

a short presentation on the intersection of WWII sites in Orange County and OCARC Field Days. Nicholas, AF6CF will be taking calls on Skype from members outside the area who cannot attend.

The OCARC Lifetime Achievement Award will be inaugurated at this meeting, and those leaders who have contributed greatly to the club over our 85 year history will be commemorated with this award. These leaders built the strong foundation on which we sit upon right now. Not only do we owe a debt of gratitude for their service to our club, but also to our country. When I joined our club in the late '80s, it was great to see all the Veterans in at the meetings. Very prominent among these was Kei Yamachika, W6NGO who served in the famed 442 Regimental Combat Team in Europe. I also salute the Veterans currently in our club! We owe you great thanks for your sacrifice.

This is a busy time of year for our Club. We will be doing a picnic on Saturday October 6 in Irvine to participate in the California QSO party. See the announcement elsewhere in this RF. Hope to see you there! Don't forget to search for items to sell at our October Auction.

Tim Goeppinger N6GP

President

## Next General Meeting

***The September 21<sup>st</sup> 2018 OCARC General Meeting program will be the 85<sup>th</sup> Anniversary Reunion***

*The next General Meeting will be on:*

**Friday, September 21, 2018  
@ 7:00 PM**

ENTER from the WEST SIDE entrance of  
the  
Red Cross Building, Room 208  
Take elevator to the 2<sup>nd</sup> Floor.  
See you there!

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**Orange County  
Amateur Radio Club**  
[www.W6ZE.org](http://www.W6ZE.org)



### 2018 Board of Directors:

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### 2018 Club Appointments:

#### **W6ZE Club License Trustee:**

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#### **Contact the Newsletter:**

Feedback & Corrections:  
[rf\\_feedback@w6ze.org](mailto:rf_feedback@w6ze.org)

#### **Submit articles:**

[editors@w6ze.org](mailto:editors@w6ze.org)

### Monthly Events:

#### **General Meeting:**

Third Friday of the month  
at 7:00 PM held at:  
**American Red Cross**  
600 Parkcenter Drive  
Santa Ana, CA  
(Near Tustin Ave. & 4<sup>th</sup> St.)

#### **Club Breakfast (Board Mtg):**

Normally First Saturday of month at 8am  
Marie Callender's Restaurant  
1821 North Grand Ave  
Santa Ana, CA  
(Between 17<sup>th</sup> & Santa Clara)

### Club Nets (Listen for W6ZE):

28.375 ± MHz SSB  
Wed- 7:30 PM - 8:30 PM  
Bob AF6C, Net Control  
Alt: Corey, KE6YHX, Net Control

146.55 MHz Simplex FM  
Wed- 8:30 PM - 9:30 PM  
Corey, KE6YHX, Net Control

7.086 ± MHz CW **OCWN**  
Sun- 9:00 AM – 10 AM  
Ann K6OIO, Net Control



### **Club Dues for 2018:**

Regular Members renewals\* - - - \$30  
Family renewal/Join\*\* - - - - - \$45  
New Member Join May-Jun\*\*\* \$15.00  
Replacement Badge\*\*\*\* - - - - - \$ 3

\* Member renewals Jan-Dec.

\*\* Two members or more, w/badge.

\*\*\* New members Jul-Sept, w/badge.

\*\*\*\* There is a \$1.50 charge if you'd like to have your badge mailed to you.





## Save the Date – Sept. 21, 2018

### Please come, enjoy, and renew friendships

As we all know, 2018 marks the 85<sup>th</sup> anniversary of Orange County Amateur Radio Club's service to the ham community. And, we welcome all members, current and former, and good friends of the club to gather at the September General Meeting for an 85<sup>th</sup> Anniversary Reunion Celebration.

Plans for the evening include: ARRL acknowledgement by WU6D, a mobile rig display, historical reviews of club activity by KE6YHX and N6GP, SKYPE service, refreshments for all, and plenty of opportunity to renew friendships.

All attendees are invited to bring along your mobile rig for the viewing.

SKYPE Address - nickhaban

Available after 7:15 pm PDT

Please plan to meet with old friends at our 85<sup>th</sup> Anniversary Reunion Meeting.



Mobile Viewing time – 6:30 pm PDT  
Meeting Start time - 7:15 pm PDT

Meeting location:  
Santa Ana Red Cross Office Building  
Room 208  
600 Park Center Drive  
Santa Ana, CA 92705

Directions including a map are available at [www.w6ze.org/meetings](http://www.w6ze.org/meetings).



## UP COMING EVENTS

September 21st, 2018

85<sup>th</sup> OCARC Anniversary, Reunion, Festivities

The Orange County Amateur radio Club was founded way back in 1933. This September we are celebrating the 85th anniversary of the club with a reunion. If you are a current or former member you are invited. Plans are being made. Set aside this date and join in.

October 19th, 2018

OCARC AUCTION and excitement

November 16th, 2018

John Stanford, KF6I, and Steve Jensen W6RHM

“High Voltage Apparatus”

A real-life spark transmitter and Marx generator. More information to follow in the next newsletter.

December 7th, 2018

OCARC Holiday Dinner (Mimi's – Tustin)

January 18th, 2019

Arnie Shatz, N6HC

“Baker Island DXpedition”

Photos and discussion of the recent Baker Island, KH1/KH7Z, DXpedition. Arnie was the medical representative along with all the other duties of preparation, set-up, operating, and tear-down. , Arnie always brings back interesting presentations from his trips.

**For the most current Upcoming event information go to the OCARC EVENTS website:**

<http://www.w6ze.org/Events.htm>

### Opportunity Drawing Request:

If you have something you would like to part with, donate it before the meeting for the Opportunity Drawing.

See Ron W6WG



## Radio Activity September 2018

### Upcoming Activities:

#### September

**\*\*North American Sprint, RTTY:** 0000 UTC to 0400 UTC Sunday September 16.

- **144 MHz:** 1900 Local to 2300 Local Sunday September 17.
- **\*\*North American SSB Sprint:** 0000 UTC to 0400 UTC Sunday September 24.
- **ARRL EME Contest:** 0000 UTC Saturday 29 to 2359 UTC Sunday September 30.

#### October

- **\*10-10 Int. 10-10 Day Sprint:** 0001 UTC to 2359 UTC Wednesday Oct. 10.
- **Oceania DX Contest, Phone:** 1800 UTC Oct. 6 to 1800 UTC Sunday Oct 7.

\* Indicates club entries are accepted

\*\* Indicates team entries are accepted

Note: When submitting logs for ARRL Contests indicate your club affiliation as "Orange County ARC"

### State QSO Parties:

- **Iowa QSO Party:** 1600 UTC Saturday Sept. 15 through 1200 UTC Sunday Sept 16.
- **New Hampshire QSO Party:** 1600 UTC Saturday Sept. 15 to 0400 UTC Sunday Sept. 16 and 1600 UTC to 2400 Sunday Sept. 16.
- **New Jersey QSO Party:** 1600 UTC to 0359 UTC Saturday Sept. 16 and 1400 UTC to 2000 Sunday Sept. 16.
- **Texas QSO Party:** 1400 UTC Saturday Sept. 29 to 0200 UTC Saturday

- Sept. 30 and 1400 UTC to 2000 Sunday Sept. 30.

- **Maine QSO Party:** 1200 UTC Saturday Sept. 22 through 1200 UTC Sunday Sept. 23.

- **California QSO Party:** 1600 UTC Saturday October 6 through 2200 UTC Sunday Oct. 7.

- **Nevada QSO Party:** 0300 UTC Saturday October 13 through 2100 UTC Sunday Oct. 14.

- **Arizona QSO Party:** 1600 UTC to 0600 UTC Saturday October 13 and 1300 UTC to 2200 UTC Sunday Oct. 14.

- **Pennsylvania QSO Party:** 1600 UTC Oct. 13 to 0500 UTC Sunday Oct. 14 and 1300 UTC to 2200 Sunday Oct. 14.

- **South Dakota QSO Party:** 1800 UTC Saturday Oct. 13 through 1800 UTC Sunday Oct 14.

### Continuing Activity:

- **ARRL International Grid Chase** January 1, 2018 through December 2018

### Repeating Activities:

- **Phone Fry** Every Tuesday night at 0230Z to 0300Z
- **SKCC Weekend Sprintathon** (Straight Key CW) on the first weekend of the month after the 6<sup>TH</sup> of the month. 1200 Sat. to 2359Z Sunday.
- **SKCC Sprint** (Straight Key CW) 0000Z to 0200Z on the 4<sup>th</sup> Tuesday night (USA) of the month.

Send an email to Ron W6WG, [w6wg@w6ze.org](mailto:w6wg@w6ze.org) to have your favorite activity or your recent RadioActivity listed in next month's column.

73, Ron W6WG

# October 6, 2018      Save the Date!

## Orange County Amateur Radio Club

### 2018 Picnic and CQP



*Where – Jeffery Open Space Park, Irvine, CA (Southeast corner of Irvine Blvd and Jeffery Road)*

When- October 6, 2018, around 10:30. Board of Directors Meeting at 8:00 followed by station/picnic setup.

October 6 is the weekend of the California QSO Party. Come and join fellow OCARC members and guest at the Jeffery Open Space Park for a day radioactive friendship. We are planning to have a station on the air operating in the California QSO Party.

Participants should plan on bringing their own food and drinks. Additional picnic chairs would be a good idea.

Parking is available at the intersection of Shepard and Grassland which is very close to the picnic benches.

Antennas will most likely be a 20M vertical and a few dipoles. There are 40 foot trees at each end of the picnic area offering a chance to try out your antenna launchers. Rigs will be IC-7000 and IC-746Pro.

The facilities include four park benches and clean restrooms. Club popup tents will provide shading.

**Members who are unable to attend can still contribute by submitting their CQP logs as an OCARC club submittal.**



## OCARC GENERAL MEETING MINUTES August 17, 2018

The OCARC General meeting was held at the Santa Ana Red Cross Complex on August 17, 2018.

**Club Officers:** There was a quorum. All officers were present.

**Attendance:** Present were 28 members, and guest speaker Wayne Yoshida, KH6WZ.

The meeting was called to order at 7:05 pm and was followed by the Pledge of Allegiance to the Flag and introductions of the members and guests

Arnie, N6HC announced the upcoming "RT66 On the Air" event during the week of Sept 2. Arnie invited any member interested in taking an operating turn on W6B to do so at his QTH.

### August Program:

Dan, KI6X introduced the evening's presenter, Wayne Yoshida, KH6WZ. Wayne currently contributes a regular column for CQ Magazine and presented the topic "**Not Your Grandpa's Ham Radio**".



Wayne has extensive and varied experience as a technical writer, author, and editor with industrial and environmental sales manager experience. He was first licensed as a teen in 1976 and has applied his ham radio experience to advantage in a successful technical writing career. His teen age ham radio hobby has and continues to influence his life and career. Wayne is committed to offering hands on educational experiences to youth and to encouraging ham radio as a hobby.

Early on, Wayne noticed that ham demonstrations often fall flat when, featuring an operating station setup with equipment facing the operators, the guest was limited to viewing the operator's back and/or the rear panels of the radio.

Along with Dennis, W6DQ, he decided to develop hands-on interactive electronics demonstrations to

show at Maker Faires around the area. The intent would be to:

- Show what hams are doing with technology.
- Improve the ham radio image.
- Emphasize ham radio's role in science and technology.
- Suggest a positive career path for youth.

Their target audience was to be non-hams with an emphasis on youth. The goal was to influence a future generation of technicians and engineers. The method was to allow the young people to touch, operate, and make the equipment function.

Wayne showed us examples of their exhibits such as, an X-band detector reading out vertical vs horizontal RF wave orientation, a lightning detector, various homebrew antennas built from common materials like measuring tape and PVC pipe, as well as fun hands-on blinky light gadgets that the kids could operate and learn from.

Wayne recommends members visit and enter Maker Faires as well as demonstrations at events such as Field Day and the annual Faire at San Mateo.

Wayne invites all members to the free Career Coaching Workshop at Saddleback Church. Career Coaching is designed to assist in the development of job search strategies, tools, and personal marketing plans to reduce the transition time for those who are seeking employment. Information is available at:

<https://saddleback.com/connect/ministry/career-coaching-and-counseling/lake-forest>

**Show and Tell:**

Nicholas, AF6CF presented a slide show of his recent visit to El Salvador. He visited and toured the club house of a local radio club. The club house was huge including nine complete operating positions, an antenna farm featuring a 5 element 40 meter yagi, 9 repeaters and a spectacular view of the city below and the mountain behind. It was very impressive.

Vijay, KM6IZO showed and reviewed a new  $\mu$ BITX QRP Arduino controlled transceiver kit. The 10 watt CW/SSB rig, made in India, is unique and the kit appears complete and fun to build.

**Business Meeting:****Director Reports:**

**85<sup>TH</sup> Anniversary :** Tim, N6GP reviewed plans for the upcoming Anniversary Meeting which will begin with a viewing of several mobile rigs including those of Wayne, N6NB, Cory, KE6YHX and the Red Cross Emergency Communication vehicle. Tim and Corey will each make a club historical presentation. And, a SKYPE contact opportunity will be offered for out of town members. Recognition of the occasion will be given by Carl Gardenias, WU6D representing ARRL

Jim, AF6N reviewed the status of the Commemorative Mug program. A vendor has been secured. Mug requests have been accepted since May and will continue through the September meeting at which time the bulk order will be submitted to the vendor. The member price for the mug is \$14.00.

**Activities:**

Ron, W6WG announced that October 6 the club picnic will be held at the Jeffery Open Space Trail site again. We will participate as W6ZE in the California QSO Party. We hope that members will also participate from home QTH's and combine their results with the club station, W6ZE.

Ron also reminded of the Holiday Dinner meeting at Mimi's on December 7.

Winter Field Day plans are underway.

**Ask the Elmer:**

Steve, N6BKB asked for advice on achieving 160 meter resonance with his new 43ft vertical antenna.

Chip, K7JA suggested adding inductance and use of a large matchbox tuner.

Tom, W6ETC asked if anyone else has had trouble encoding digital signals with their IC7300. There seemed to be several other members with the problem and the consensus opinion appeared to be that the computer drivers **must** be loaded **prior** to connecting to the rig as is called for in the Icom manual.

Doug, K6PGH recommended viewing a U-Tube video for programing both the IC7300.

Chip, K7JA and Janet KL7MF reported having visited with Kristin, K6PEQ while in Australia. Kristin is doing great down under, lives near a beach, and sends her greetings to OCARC.

Chip also played a recording of PI9CAM singing [Frère Jacques](#) via moonbounce while using 120 watts to an 82ft dish on 1296 Mhz.

Ken, W6HHC reported a rumor from QRZ.com of consideration of removal of the western WWV transmitters in 2019.

**Opportunity Drawing:**

Ron, W6WG held the drawing and announced that the drawing funds are within \$15 of break even.

**Meeting Adjourned** at 9:09 pm.

**Submitted by** *Jim Schultz, AF6N*

**A Letter to Our Logo**

**Saturday, April 14th, 2018**

**Dear Orange,**

**When I saw you,  
I was going to binge,  
but the broad tinge  
of yellow dinge  
on your upper fringe,  
I saw, made me cringe,  
until with our club call, I gave you a singe.**

**Yours Juicily,  
Sigmund Fruit N0RNG**





## OCARC BOARD MEETING MINUTES Sept 8, 2018

The September OCARC Board meeting was held at the Marie Callender's Restaurant at 1821 N. Grand Ave in Santa Ana on September 8, 2018. Meeting called to order at 8:07 am with a quorum.

**Roll Call:**

President: Tim N6GP, Present  
Vice President: Dan KI6X, Present  
Secretary: Jim AF6N, Present  
Membership: Bob AF6C, Present

Technical: Kenan KR6J, Absent  
Treasurer: Ken W6HHC, Present  
Activities: Ron W6WG, Present

Publicity: Tim, N6TMT, Present  
Directors at Large:  
Corey KE6YHX, Present  
Clem W0MEC, Present

**DIRECTOR REPORTS:**

**Vice President** Report deferred to Old Business.

**Secretary:** .Report deferred to Old Business.

**Membership:** Bob AF6C reported that he has completed scanning and entering all available past RF Newsletters to the website. Bob recommends RF's from 1968, 1969, and 1970 for interesting historical articles.

**Technical:** No current report.

**Treasurer:** Ken, W6HHC presented the Year to Date Cash Flow report. Cash flow for the Year to Date has been a net \$541.56 inflow. See the attached Cash Flow report.

*A discussion followed centered on the annual Auction and what possible donations of equipment might be available. Members are encouraged to consider bringing equipment to sale at the auction.*

Jim AF6N delivered proceeds of one additional mug sale bringing the total to date to 16. A summary of all sales was presented. A discussion followed of ceasing mug sales as of Sunday September 23.

**Activities:** Ron, W6WG deferred his report for Old Business.

**Publicity:** Tim, N6TMT Report deferred to Old Business.

**Director at Large:** Clem, W0MEC no current report.

**Director at Large:** Corey, KE6YHX delivered the current month's Archive Report. He reported addition to the website of historical photos courtesy of First American Title and the entry of the August W6ZE.org backup file as well.

Corey requested a copy of the OCARC logo suitable for his Reunion presentation. Bob, AF6C will supply it.

Tim, N6GP relayed information from Dave, N7RK that his uncle Dave Holland had designed the club logo in approximately 1968.

**OLD BUSINESS:**

**Newsletter Editors:** Upcoming RF Newsletter Rotating Editors will be:

Jim, AF6N will edit for September.

Tim, N6GP will edit for October.

Kenan, KR6J volunteered for November.

Dan, KI6X volunteered for December.

**Upcoming Programs:** Tim, N6GP reported:  
September 21st, 2018 -  
85<sup>th</sup> OCARC Anniversary Reunion, Festivities will include: Carl Gardenias, WU6D speaking in behalf of ARRL, a mobile rig show, historical presentations, refreshments and reuniting with good friends.

October 19th, 2018

OCARC Auction, excitement and fun.

November 16th, 2018

John Stanford, KF6I, & Steve Jensen W6RHM  
“High Voltage Apparatus”

**85<sup>th</sup> Anniversary:** Tim, N6GP sent out reminders to mobile rig show participants.

Jim, AF6N suggested another email blast as a Reunion reminder. The blast should include information regarding SKYPE contact.

Ron, W6WG reported he has confirmed that Ralph's Grocery can supply a half sheet cake featuring our QSL card as the decoration. The cake will serve 48 slices for approximately \$35..

Tim, N6TMT volunteered to pick up both decaf and regular coffee supplies for refreshments

Corey, KE6YHX will bring a computer for the presentations. Dan, KI6X will bring a backup computer.

Tim, N6GP will confirm SKYPE setup with Nicholas, AF6CF and request SKYPE connection information for the Reunion reminder.

The Car Show will start at 6:30 pm and be followed by the meeting at 7:15 pm. No business will be conducted at the meeting.

**Lifetime Achievement:** Corey KE6YHX passed around an award design that received unanimous agreement. Corey was given authority to proceed with the award as was presented up to a \$100 limit.

**Field Day Tower Plate:** All agreed that the 2<sup>nd</sup> tower plate should be reinforced. Atlee of Datum Control has

agreed to reinforce or enlarge the plate similar to the 1<sup>st</sup> tower plate.

**EMCOMM Update:** Bob AF6C reports that work continues on an update of the RF webpage. No additional report at this time

**Holiday Banquet:** Ron W6WG reported that he has confirmed a December 7 reservation with Mimi's Café for their large room. Plans are underway for gifts, etc.

#### NEW BUSINESS:

**Club Picnic:** It was agreed that we again hold a combined Board Meeting/Picnic at the Jeffery Open Space Trail site. Tim, N6GP will bring his IC-7000. Ron, W6WG will bring his hexbeam and mast and we will install only 15 and 20 meter wire. We will participate in the California QSO Party and hope that non-attending members will participate from home QTHs and combine their results with the W6ZE results.

**Nominating Committee:** A nominating committee for the 2019 Board was named and includes: Tim, N6GP, Tim, N6TMT, Ron, W6WG, and Bob, AF6C.

*The Committee requests and welcomes member's suggestions for names to be considered for Board nomination.*

#### FOR THE GOOD OF THE CLUB:

Tim, N6GP reminds that Arnie, N6HC will be operating as W6B, the West Coast RT 66 station from Friday, 9/7 thru Friday, 9/11. Arnie has invited members to guest operate from his QTH.

Jim, AF6N read an email Reunion response from Bob Heil, K9EID. Bob expressed regrets at being unable to attend the Reunion but wished to say hello to his friends at OCARC.

The meeting adjourned at 9:47 am.

Submitted by:

Jim Schultz AF6N  
OCARC Secretary



Heathkit of the Month: Special #A05

Book Review:

by Bob Eckweiler, AF6C



## Heathkit Hi-Fi and Stereo Products

by: Chuck Penson - WA7ZZE

ISBN 978-0-692-09843-1

\$29.95

*Heathkit Hi-Fi and Stereo Products* is Chuck Penson's third Heathkit book (**Figure 1**), each covering a specific product line; his previous two books cover the Amateur Radio Products<sup>1</sup> and the Heathkit Test Equipment Products<sup>2</sup>. Chuck is also the author of *The Titan Handbook - A civilian's guide to the most powerful ICBM America ever built*; a fitting subject as Chuck is retired from the position of historian for the **Titan Missile Museum** near Tucson, AZ.

Heathkit's first audio product, the A-1 Hi-Fi amplifier was announced in their November 1947 flyer. It was only the third Heathkit offered, and the first non-test equipment kit. The two preceding kits were the O-1 oscilloscope and the V-1 VTVM. No Heathkits had yet received model designations at the time. It wasn't until almost five years later that Heathkit delivered the AT-1 amateur transmitter, its first ham radio product<sup>3</sup> (excluding general coverage short-wave receivers). Kit Hi-Fi and stereo equipment remained a solid Heathkit product line into the eighties when low-cost equipment from overseas cut heavily into their bottom line. Thus this book covers a significant part of Heathkit business and Heathkit history.

Here is a link to the index of Heathkit of the Month (HotM) articles:

[http://www.w6ze.org/Heathkit/Heathkit\\_Index.html](http://www.w6ze.org/Heathkit/Heathkit_Index.html)



**Figure 1:** Book Front Cover (Photo from the front cover of the Fall-Winter 1961-62 Heath Catalog)

The book starts with an introduction, followed by five chapters, each covering a specific category of equipment, except the fifth chapter which contains a collection of remaining kits that do not fit one of the first four chapter categories. The sixth chapter presents the schematics for the W and WA series of Williamson amplifiers and preamplifiers, historic due to the improvement in fidelity from previous amplifier designs. The next three chapters are three indices of the contents of the book, they appear by model #, by product type and by chronology. **Table I** lists the chapters, number of kits they cover and pages in the chapter.

### Introduction (Chapter i):

Don't make the mistake of skipping over the introduction in any of Chuck Penson's Heathkit books. They are easy reading and full of

Ch.	Title	# Kits <sup>1</sup>	Pages
i.	Introduction	-	14
1.	Preamplifiers	15	14
2.	Amplifiers	79	58
3.	Tuners	31	28
4.	Receivers	19	22
5.	Related Products	66	40
6.	W-Series Schematics	13	14
7.	Model Number Index	-	4
8.	Product Index	-	4
9.	Chronological Index	-	4

1. Items updated with new letter designations in their suffix are counted as a separate item.

**Table I: Chapter Titles, Kits Listed and Pages**

Heathkit history, well explained technical information, design styling nuances and history, safety notes, and general information about model numbering, sales and chronology.

It is in the introduction that the author describes his philosophy for the book, and provides the readers with information that will help them glean more from the rest of the book. He also takes a few paragraphs to explain many aspects of the Williamson amplifier (that offers very high frequency response, sometimes to over 100 kHz) and some history of output transformers and “Ultra Linear” amplifiers.

Hi-Fi amplifiers often received some of their specifications from the sales department rather than engineering. Chief among these specifications is power output rating. In an effort to thwart schemes to make the power seem higher than it is by competitors, Heath was upfront on how it determined power output. This is explained further in the introduction. Perhaps it worked, and that’s why creative sales representatives have moved to the ham and consumer antenna market, specifying antenna gain?

## Chapters 1 through 5

The format that chapters one through five follow are similar. Each product is presented individually or grouped with its revised (“A”, “B” etc.) versions along with a photo or series of photos. Many of these photos were taken by the author, mostly from the Heathkit collection of Jerry O’Reilly. Other photos are from Don Peterson’s collection and from the Heathkit catalogs. In a few instances a photo is not available of an early product and then, when possible, a drawing from a Heathkit flyer is used. In some instances the actual product appears differently from the prototype photo or drawing offered initially, in that case both illustrations are often presented.

Included with each product are its specifications<sup>4</sup> as shown in the manual or advertising. Also often included are charts and graphs showing aspects of performance, as well as drawings from the manual related to wiring options for specific reasons (such as using a different preamp, etc.) Below the kit model heading the original factory cost and span of production are given for each kit and any subsequent revisions.

One, up to more than a dozen paragraphs are written for each kit describing things like the kit’s timeframe, its origin (what kit it replaces, if any), its successor (what kit replaces it, if any), unique aspects of the kit and a general discussion of the kit, often including important tidbits. Heathkit occasionally updated the physical appearance of a product, changing the model number but making little or no changes to its circuitry or performance. These are noted in the book.

## Preamplifiers (Chapter 1)

Frequently, preamplifiers are built into the amplifier and a separate preamplifier is not needed. The biggest exception being early Hi-Fi amplifiers such as the Williamson de-



sign amplifiers. Many later high-end stereo systems also utilized separate preamplifiers. The ones offered by Heathkit are discussed in Chapter 1 which covers the AA-11 through the WA-P2, fifteen preamplifiers in all.

### **Amplifiers (Chapter 2):**

Amplifiers - monaural, stereo and quadraphonic; tube-based and solid-state; both with and without built-in preamplifiers - are covered in Chapter 2. These amplifiers range from the 3-watt, tube-based EA-1 mono amplifier to the 250 watts-per-channel, solid-state, AA-1800 stereo amplifier.

Sixty different models, some with “A”, “B” etc. revisions are included. Special detail is included for the eleven Williamson “W” prefixed amplifiers, the WA-A1 – W-7M which by themselves take up 15 pages in the chapter.

### **Tuners (Chapter 3):**

Heathkit offered over the years 29 different monaural and stereo tuners, of which 11 are solid-state. Tuners came in five varieties, AM, FM, FM Stereo, AM/FM and AM/FM stereo.

Of interest are some AM tuners built in the day of promised extended fidelity AM broadcasting. Also of interest are the early FM tuners designed in the day when 100 MHz was considered a challenge for kit designing.

### **Receivers (Chapter 4):**

Receivers are the “Prego” of stereo devices (“It’s in there.”) and include the preamplifier, tuner and amplifier all in one box. The tuner can be either AM/FM or FM only. Receivers can also include a tape deck, though Heathkit offered only 8-track decks on the two receivers that had decks.

All the receivers offered by Heathkit were stereo except for the lone AR-27 that was

monaural and the AC-1122 and AR-2020 that were 4-channel quadraphonic.

Many receivers originated as separate amplifiers and tuners, others gave birth to separate amplifiers and tuners. The author points these out throughout chapters two, three and four.

### **Related Products (Chapter 5):**

This chapter is a potpourri of kits that don’t fit in the first four categories. It includes phonographs and record changers, reel-to-reel tape decks, tape deck electronics, reel-to-reel tape rewinders, cassette tape decks, 8-track tape decks, stereo credenzas, stereo consoles, audio processors, audio scopes, equalizers, power meters, speaker selectors, headphone control boxes, spectrum analyzers, pink noise generators, graphic output indicators, crossovers, stereo and four-channel decoders, microphones, historic AM radios, reverberation units, FM monaural radios, stereo converters for FM monaural radios, FM stereo radios, and FM multiplex adapters. None of these, with (barely) the possible exception of phonographs and tape related products, are in a quantity great enough to warrant their own chapter; in many categories there is only one kit.

Chapter 5 is especially interesting in the fact that many of the devices listed are items the typical non-audiophile probably didn’t own as part of their audio system. Still, many are likely items that sparked interest. The author spends an extra paragraph on some of the more unusual items in this chapter.

### **Schematics (Chapter 6):**

To include all the schematics of the kits in this book would make a tome all itself. However, and with permission, the author has published the schematics for the early

MODEL NUMBER	PRODUCT TYPE	SOLID STATE	PAGE NUMBER	FIRST YEAR	LAST YEAR	YEARS IN CATALOG	PRICE	SPECIFICATIONS
AA-23	Amplifier		2-15	64	68	5	42.95	monophonic, 25 watts
AA-29	Amplifier	SS	2-15	70	76	7	169.95	stereo, 35 watts

**Figure 2:** Sample index entry.

Williamson amplifiers and their matching preamplifiers, thirteen in all.

### Indices (Chapters 7 - 9):

Each of the next three chapters is a four-page index. They are identical except for the crucial fact that they are sorted differently, making it easy to find a specific item. Chapter seven is sorted by model number: A-1 (Amplifier) to XO-1 (Crossover). Chapter eight is sorted by product type: 4-Channel decoder (AD-2002) to Tuner (PT-1). And chapter nine is sorted chronologically: 1947 (A-1 amplifier) to 1984 (AD-1308 Audio spectrum analyzer). Each item in the index includes the model number, product type, whether it's solid-state, page number in book, chronological information, initial price and description. **Figure 2** gives a sample of a typical index entry.

### What's not in the book:

The author purposely left some products out of the book, simple table and portable radios, which don't really fit into the Hi-Fi category, and turntables, all of which came assembled and were made by third parties. Most of these turntables could be bought at the average stereo store under the brand name. On the other hand, phonographs comprised of assembled turntables along with Heathkit electronics are included. Basically, any Hi-Fi or stereo related Heathkit you could buy and assemble is included.

One exception is the SK-107 Stereo Synthesizer; a simple kit that converts monaural audio into pseudo-stereo. It is covered in

HOM #69 and in the January 2016 issue of the *RF Newsletter*.

Some kits are included even if they don't fit Hi-Fi or stereo in the true sense. The reason is for their historic value. One such kit is the BR-1 AM radio.

### Comments:

For the record, I have to mention that I played a very minor role in the book, advising on some technical issues and helping proof read and fact-check. I have no financial interest in the book.

If you are an audiophile who owns Heathkit equipment this is a must for your library. Heathkit historians, or those just interested in the various Heathkit products will find this book an interesting read and later a useful reference. I've read about a few Heathkits in the book that now are of interest to me. I've always wanted an AM tuner. Heathkit never made a standalone AM solid-state tuner (just AM/FM), but they did make some tube AM only tuners.

Over the years I have owned just a few Heathkit audio products including the AJ-14 solid-state tuner and AA-14 solid-state amplifier that sit in a bedroom and are in use regularly. I own a few other Heathkit audio products including an FM-4 tube-based FM tuner, an AA-32 tube based amplifier, and the SK-107 Stereo Synthesizer. Each of these have been the subject of a *Heathkit of the Month* article. The majority of my Heathkits

are test equipment and amateur radio related, with a few household products thrown in.

Chuck Penson's other books have sold well. Both editions of the amateur radio book are sold out, and used prices have skyrocketed. The test equipment book is still available new on Amazon, but appears to be nearly sold out. With the many audiophiles out there who collect Heathkits, I imagine this

#### Notes:

1. **A Guide to the Heathkit Amateur Products.** (1st. and 2nd. editions) Out of print. A third edition is planned.
2. **Heathkit Test Equipment Products.** Available on Amazon
3. Heathkit did advertise an amateur transmitter between January and March 1948 in **Radio News**, but never in its own flyer. None were ever known to be sold and no examples ever found.
4. Specifications sometimes changed over the life of a product. The specifications used are from available manuals or catalogs, and may be different than as given in earlier or later manuals or catalogs.

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*Remember, if you are getting rid of any old Heathkit Manuals or Catalogs, please pass them along to me for my research.*

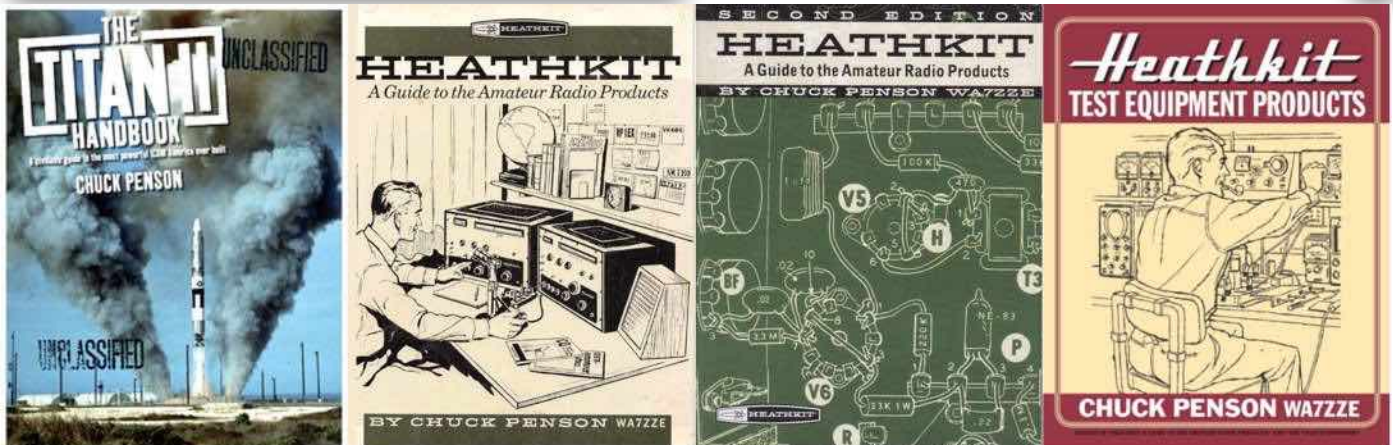
*Thanks - AF6C*



**Figure 3:** Book Rear Cover (Photo: inside view of the Heathkit AA-100 25-watt tube-based Stereo Amplifier)

book will sell out quickly too. If interested, you may want to get a copy while they are available.

73, from AF6C



**Figure 4:** Other books by Chuck Penson - WA7ZZE: (L to R) **The Titan Handbook** - A Civilian's guide to the most powerful ICBM America ever built; **Heathkit - A Guide to the Amateur Radio Products** (1st edition); **Heathkit - A Guide to the Amateur Radio Products** (2nd edition); and **Heathkit Test Equipment Products**

**OCARC Cash Flow - Year To Date  
1/1/2018 through 9/8/2018**

9/8/2018

**1/1/2018-  
9/8/2018**

Page 1

**Category**

**INFLOWS**

Badge Income	2.00
Coffee Mug Sales Do-	196.00
nation	10.00
Dues, Family (PayPal) Dues,	172.89
Membership	787.50
Dues, Membership (PayPal) Field	677.35
Day Food Income Opportunity Draw-	422.00
ing -Monthly	375.00
Opportunity Drawing IN - Christmas Re-	100.00
freshments Income	67.83
Troop 440 donation from KM6EMP	65.00

**TOTAL INFLOWS**

**2,875.57**

**OUTFLOWS**

CA Statement Of Info filing CU	20.00
service Fee	20.00
Donation to Troop 440 - from JoelKM6EMP Field	65.00
Day - Flowers	53.88
Field Day - Gas	44.85
Field Day Equipment Repairs Field	49.48
Day Food Reimbursement OCARC	657.00
Historian	122.45
Opportunity Drawing - Monthly PO	218.80
Box Rental	70.00
Postage	11.00
Publicity - OCARC Biz Cards Re-	18.29
freshments Expense Storage Lock-	73.03
er	663.00
Supplies	24.33
Web Site Hosting	152.91
Web Site SSL Fee	69.99

**TOTAL OUTFLOWS**

**2,334.01**

**OVERALL TOTAL**

**541.56**



**Plans for WSJT-X Version 2.0**  
**Reprinted courtesy K1JT and physics.princeton.edu/**

This white paper describes a number of important enhancements planned for WSJT-X Version 2.0. Most of them involve the FT8 and MSK144 protocols, which will be upgraded to use 77-bit information payloads rather than the present 72 or 75 bits. This modest increase in information content will make possible new message types that support the following special types of QSOs and exchanged information:

1. NA VHF Contest operation with full and transparent support of grid locators and "/R" (Rover) call signs
2. EU VHF Contest operation with the exchange of 6-digit locators, QSO serial numbers, and "/P" (portable) call signs
3. ARRL Field Day operation with standard Field Day exchanges
4. ARRL RTTY Roundup operation with standard contest exchanges
5. Better and more user-friendly support for compound and nonstandard call signs
6. A special "telemetry" message format for exchange of arbitrary information (up to 71 bits)

Decoding sensitivity for the new messages will be essentially the same as for the FT8 and MSK144 modes presently in WSJT-X v1.9.1. The existing FT8 DXpedition mode will still be supported, and a more powerful DXpedition mode may be offered as well.

In this document we'll call the new FT8 protocol "FT8+". It will be a superset of the FT8 implemented in v1.9.1, providing at least temporary compatibility and inter-operability with older program versions. We may decide to remove support for old-style 72- and 75-bit messages after a specified switchover interval.

In contrast, the new MSK144 protocol will replace the old one without backward compatibility. We believe the smaller and more specialized group of MSK144 users will upgrade quickly and not find this restriction to be a problem.

Here are some examples of message formats that will be supported by FT8+ and MSK144 in WSJT-X v2.0. The list is not exhaustive. Parameters i3 and n3 (shown in column 1) are used in the software to define major and minor 77-bit message types.

i3.n3 Example Messages	Comments
0.0 TNX BOB 73 GL	Free text
0.1 K1ABC RR73; W9XYZ <KH1/KH7Z> -08	DXpedition Mode (sent only by Fox)
0.2 G4ABC/P R 570007 JO22DB	EU VHF Contest
0.2 PA9XYZ 590003 IO91NP	EU VHF Contest
0.3 K1ABC W9XYZ 6A WI	ARRL Field Day
0.3 W9XYZ K1ABC R 2B EMA	ARRL Field Day
0.5 123456789ABCD	Telemetry (18 hex digits)
1. <PJ4/K1ABC> W9XYZ	Compound call
1. W9XYZ <PJ4/K1ABC> 73	
1. CQ FD K1ABC FN42	
1. CQ K1ABC FN42	
1. CQ TEST K1ABC FN42	NA VHF Contest ("TEST" optional)
1. CQ TEST K1ABC/R FN42	
1. K1ABC W9XYZ EN37	
1. K1ABC W9XYZ -09	
1. K1ABC W9XYZ R-17	
1. K1ABC W9XYZ RRR	
1. K1ABC W9XYZ 73	
1. K1ABC W9XYZ RR73	
1. K1ABC/R W9XYZ EN37	
1. K1ABC W9XYZ/R RR73	
1. W9XYZ <YW18FIFA> -13	Nonstandard call

1. <YW18FIFA> W9XYZ R+02  
 1. W9XYZ <YW18FIFA> RRR  
 1. <YW18FIFA> W9XYZ RR73  
 2. CQ G4ABC/P IO91  
 2. G4ABC/P PA9XYZ JO22  
 2. PA9XYZ G4ABC/P RR73  
 3. K1ABC KA0DEF 559 MO  
 3. K1ABC W9XYZ 579 WI  
 3. KA1ABC G3AAA 529 0013  
 3. TU; G3AAA K1ABC R 559 MA  
 3. TU; KA0DEF K1ABC R 569 MA  
 3. W9XYZ K1ABC R 589 MA  
 4. CQ KH1/KH7Z  
 4. CQ YW18FIFA

ARRL RTTY Roundup  
 ARRL RTTY Roundup  
 ARRL RTTY Roundup  
 ARRL RTTY Roundup  
 ARRL RTTY Roundup  
 ARRL RTTY Roundup  
 Compound call  
 Nonstandard call

Here are some examples of minimal QSO sequences that take advantage (where necessary) of the new protocol capabilities. Model QSOs number 1 and 2 are supported already, with the present FT8 and MSK144 protocols, and number 3 with the existing FT8 DXpedition Mode. Model QSOs 4-8 (and others not illustrated here) require the new protocols with 77-bit messages.

---

#### 1. Standard QSO

---

CQ K1ABC FN42

K1ABC W9XYZ EN37

W9XYZ K1ABC -11

K1ABC W9XYZ R-09

W9XYZ K1ABC RRR

K1ABC W9XYZ 73

---

#### 2. Short-cycle QSO

---

CQ K1ABC FN42

K1ABC W9XYZ -09

W9XYZ K1ABC R-11

K1ABC W9XYZ RR73

W9XYZ K1ABC 73

---

#### 3. FT8 DXpedition Mode

---

CQ KH1/KH7Z

KH7Z K1ABC FN42

K1ABC KH7Z -12

KH7Z K1ABC R-14  
 KH7Z W9XYZ EN37

... possibly other callers ...

K1ABC RR73; W9XYZ <KH1/KH7Z> -08

---

#### 4. ARRL Field Day

---

CQ FD K1ABC FN42

K1ABC W9XYZ 6A WI

W9XYZ K1ABC R 2B EMA

K1ABC W9XYZ RR73

---

#### 5. ARRL VHF Contests

---

CQ TEST K1ABC/R FN42

K1ABC/R W9XYZ EN37

K1ABC/R W9XYZ RR73

---

6. ARRL RTTY Contest

---

CQ TEST K1ABC FN42

K1ABC W9XYZ 579 WI

W9XYZ K1ABC R 589 MA

K1ABC W9XYZ RR73

---

7. EU VHF Contest

---

CQ TEST G4ABC/P IO91

G4ABC/P PA9XYZ JO22

PA9XYZ 590003 IO91NP

G4ABC/P R 570007 JO22DB

PA9XYZ G4ABC/P RR73

---

8. Compound call

---

CQ PJ4/K1ABC

<PJ4/K1ABC> W9XYZ

W9XYZ K1ABC -11

K1ABC W9XYZ R-09

W9XYZ <PJ4/K1ABC> RRR

<PJ4/K1ABC> W9XYZ 73

---

To minimize confusion that's likely to arise during a switchover from v1.9.1 to v2.0, we propose to follow a well advertised schedule: "RC1 Date" -- perhaps as early as September 15, 2018?

---

This will be the first chance for beta testers to try WSJT-X using the 77-bit messages. We may restrict this opportunity to specific volunteer testers, and we'll probably include an "upgrade by xxxx\_date" message to remind people that they are using a release intended only for testing.

FT8+ will support the old (v1.9.1) protocol as well as the new message types outlined above. To avoid QRMing legacy FT8 users with messages they can't decode, we'll recommend testing FT8+ on frequencies formerly used for JT9.

MSK144 will be fully functional between any two stations using the RC1 software, but it will not be backward compatible with earlier program versions.

"RC2, RC3,... Date" -- perhaps in October?

---

As needed, depending on results of testing.

GA Release Date -- perhaps in November?

---

Official General Availability release of WSJT-X v2.0.0. The original MSK144 protocol will be declared obsolete.

For reference: Dates of relevant upcoming ARRL contests

---

VHF QSO Party: September 8-10, 2018

RTTY Roundup: January 5-6, 2019

VHF SS: January 19-21, 2019

---

Our proposed schedule should make WSJT-X Version 2.0 usable for relevant ARRL operating events in 2019.

---

# SAN DIEGO HAMFEST October 6, 2018



**Time of the Event: 7 AM-3 PM**  
**"Old Radio Trade Show" Starts at 6 AM**

**Hamfest Cost: \$5.00**  
**Trading Post: "Consignment Booth"**

**Old Radio Trade Show in parking lot!**  
**Set-up a table and sell your unwanted**  
**Old Radio Gear ONLY \$5.00 a space!**

All Local Ham Clubs Welcome  
 Button Hole "QSO's" with other Hams  
 Visit Ham Club Booths  
 ARRL Forum  
 Ham Radio Vendors  
 Door Prizes  
 VE Testing  
 T-Hunt  
 Speakers  
 "FREE" Antenna Friendly Parking

## Grand Door Prize



**ICOM 7300**



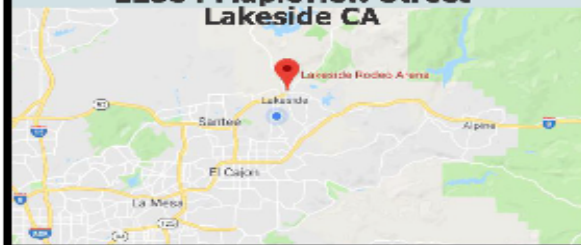
**Vendors!**



**Used Radio  
Trade Show**

### Location

**Lakeside Rodeo Grounds**  
**12584 Mapleview Street**  
**Lakeside CA**



You are cordially invited to attend the  
 4th Annual San Diego Hamfest 2018.

We plan on starting out the day with an

Old Radio Trade Show, Vendors,

Speaker Forums, and VE Testing.

So come on out and let's Ham it Up!

**Air Conditioned Tech**



**Sponsored by: Lakeside Amateur Radio Club**

Visit us on the Web at  
**WWW.LakesideARC.org**

For the most up to date information  
 Please visit: **WWW.SDhamfest.org**



Reprinted courtesy of the Lakeside Amateur Radio Club



## 2018 is OCARC's 85<sup>th</sup> Anniversary

Customized Embroidering of the OCARC Logo,

Your Name and Callsign can be placed on shirts, jackets, hats, bags, and just about anything you want.



You can either purchase the item from I.Initial or bring in whatever you have and have it embroidered for \$10.00.

They have the OCARC logo artwork on file. Delivery takes one to two weeks.

Location: 399 El Camino Real, Tustin, CA 92780

Phone # (714) 573-2552 Online at "iinitial.com"

## Orange County Amateur Radio Club 85th Anniversary Coffee Mug



Celebrate 85 Years of OCARC with your Morning Cup O' Joe

### Order Form

Call Sign	<input type="text"/>	Quantity	<input type="text"/>
Name Desired	<input type="text"/>		
Call Sign	<input type="text"/>	Quantity	<input type="text"/>
Name Desired	<input type="text"/>		
	Price Each		<input type="text" value="\$14.00"/>
Please make & mail check to:		Total	<input type="text"/>

OCARC  
PO Box 3454  
Tustin, CA 92781  
or  
Bring check to next meeting



# MiniTiouner-Express

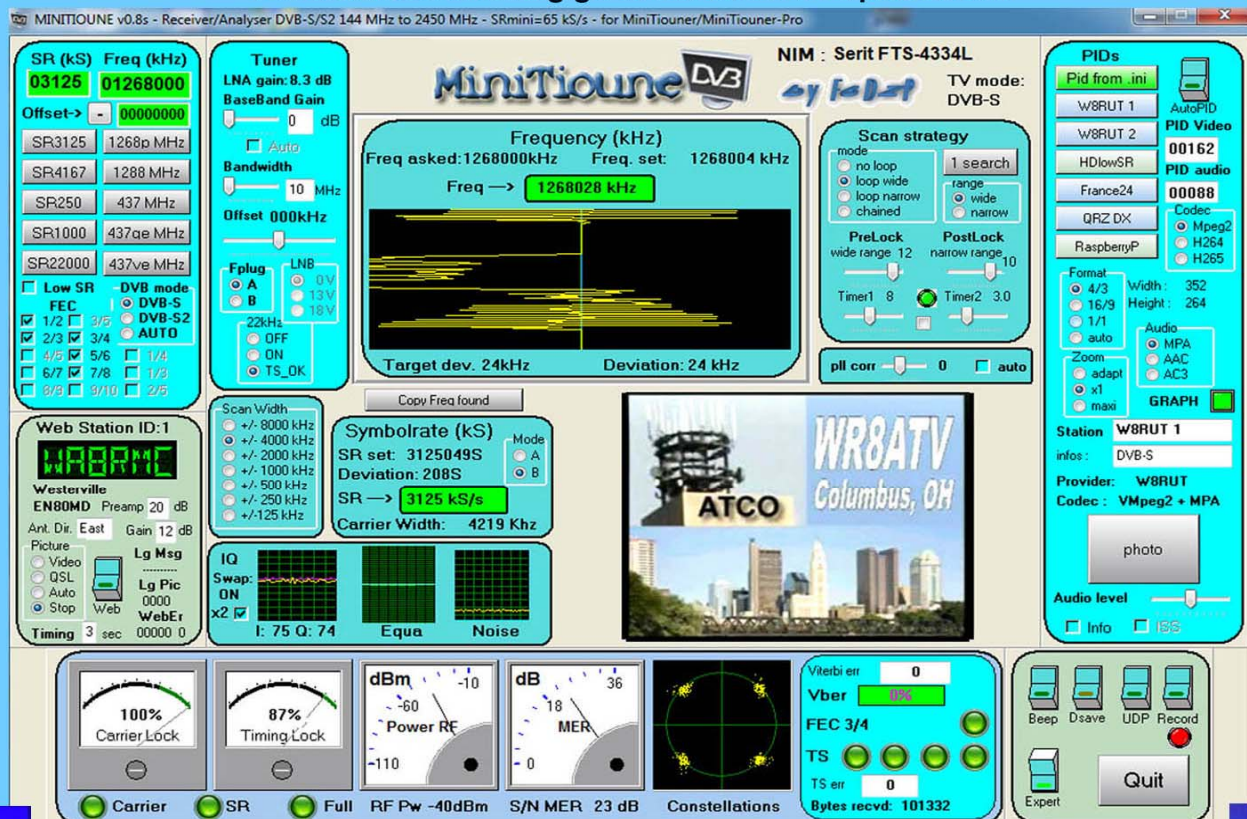
## Digital Amateur Television DVB-S/S2 Receiver / Analyzer



Available at [DATV-Express.com](http://DATV-Express.com)

- Operates with Windows PC using free MiniTioune software from Jean-Pierre F6DZP
- Smaller than a stack of 2 decks of cards (picture above is full size)
- Two independent simultaneous RF inputs with internal preamps
- High sensitivity -100dBm @1288MHz – at 1/2 FEC
- Fully assembled/tested in aluminum enclosure
- Covers 144-2420MHz (ideal for Space Station DATV reception)
- Symbol rates from 75 KSym/s to >20 MSymbols/sec
- Uses external 8-24VDC supply or +5V from USB-3 port (with small modification)
- Real time signal modulation constellation & dBm signal strength display
- Price: US \$75 + shipping – order with PayPal

For details & ordering go to [www.DATV-Express.com](http://www.DATV-Express.com)



(MiniTioune display above is the ATCO 1268MHz DVB-S repeater signal at WA8RMC QTH 15 miles away).